UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,563	03/25/2004	Jun Moroo	1341.1198	5077

21171   7590   10/01/2008

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EXAMINER
THOMPSON, JAMES A

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
10/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 September 2008</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,3-7,9-13 and 15-20</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1,3-7,9-13 and 15-20</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
       1.☐ Certified copies of the priority documents have been received.
       2.☐ Certified copies of the priority documents have been received in Application No. _____.
       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR

1.17(e), was filed in this application after final rejection. Since this application is eligible for continued

examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the

finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's

submission filed on 03 September 2008 has been entered.

2.   Applicant's arguments, see pages 6-10 of Remarks, filed 03 September 2008, with respect to the

rejections of claims 1, 3, 4, 6, 7, 9, 10, 12, 13, 15, 16, 18 and 19 under 35 U.S.C. § 102(b) and claims 5,

11 and 17 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the

rejections have been withdrawn. However, upon further consideration, new grounds of rejection are

made in view of newly discovered prior art.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis

for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or
> in public use or on sale in this country, more than one year prior to the date of application for
> patent in the United States.

4.   **Claims 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Cass (US-**

6,141,441).

    Regarding claim 19: Cass discloses an image processing apparatus comprising: a code

embedding unit that embeds a predetermined code into image data by changing a feature index of a first

color component of a block, based on a feature index of a second color component of the block (figure 14

and column 17, lines 26-44 of Cass – *data encoded based on which pixel is* $+\delta$ *and which pixel is* $-\delta$*, with*

δ *determined based on an amount that is imperceptible*), and embeds a code corresponding to paired

blocks, based on a magnitude relationship between feature indices of color components related to the

paired blocks (figure 14 and column 17, lines 20-33 of Cass).

    Regarding claim 20: Cass discloses an image data processing method comprising: pairing

blocks of image data (figure 13 and column 17, lines 20-26 of Cass – *image data divided into blocks of*

two pixels for encoding); and embedding a code into each pair of the paired blocks based on a magnitude relationship between feature indices of color components related to the respective pair of the paired blocks (figure 14 and column 17, lines 26-44 of Cass – *data encoded based on which pixel is* $+\delta$ *and which pixel is* $-\delta$, *with* δ *determined based on an amount that is imperceptible*).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   **Claims 1, 3-4, 6-7, 9-10, 12-13, 15-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cass (US-6,141,441) in view of Reed (US-2002/0164052 A1).**

Regarding claims 1, 7 and 13: Cass discloses an image data processing apparatus (figure 47 of Cass) comprising: a dividing unit that divides image data into a plurality of blocks (figure 10 and column 15, line 60 to column 16, line 5 of Cass); an extracting unit that extracts pairs of blocks from the plurality of blocks (figure 13 and column 17, lines 20-26 of Cass – *image data divided into blocks of two pixels for encoding*) and outputs a feature index of a first color component (*whether* $+\delta$ *or* $-\delta$) and a feature index of a second color component (*whether* $+\delta$ *or* $-\delta$) for each of the paired blocks (figure 14 and column 17, lines 20-33 of Cass); a registration unit that registers information about a correspondence between the feature index of the second color component and the feature index for the first color component (column 15, lines 36-43 and column 17, lines 35-40 of Cass – *color of first color component shifted by* $+\delta$ *or* $-\delta$ *and color of second color component shifted correspondingly by* $-\delta$ *or* $+\delta$, *resulting in a mean shift of zero*); and a code embedding unit that embeds a predetermined code into the image data, by changing the feature index of the first color component based on the feature index of the second color component, using the information registered, and embeds one code corresponding to the paired blocks, based on a magnitude relationship between feature indices of color components related to the paired blocks (figure 14 and column 17, lines 26-44 of Cass – *data encoded based on which pixel is* $+\delta$ *and which pixel is* $-\delta$, *with* δ *determined based on an amount that is imperceptible*).

Cass does not disclose expressly that the registration unit registers information about a correspondence between the feature index of the second color component and *a change in* the feature index for the first color component.

Reed discloses registering information about a correspondence between the feature index of the second color component and a change in the feature index for the first color component (para. 30 of Reed - *tweaking performed in one color component to balance tweaking performed in another color component*).

Cass and Reed are combinable because they are from the same field of endeavor, namely hiding data in images by tweaking color data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to create a corresponding change in a second color component based on a change in a first color component. The motivation for doing so would have been to reduce watermarking visibility and improve the ability to hide digital data in an image. Therefore, it would have been obvious to combine Reed with Cass to obtain the invention as specified in claims 1, 7 and 13.

Further regarding claims 3, 9 and 15: Reed discloses that the registration unit registers information about a correspondence between the feature index of the second color component, a difference between the feature indices of the second color component related to paired blocks (paired blocks *as per* combination with Cass), and the change in the feature index for the first color component (para. 42 and para. 43 of Reed – *"tweaking" relationship between black component and the CMY components used to redundantly embed watermark in plurality of blocks, difference between feature indices of second color component related to at least a pair (plurality) of blocks determined and used to produce consistent embedding throughout the media*).

Further regarding claims 4, 10 and 16: Reed discloses that the first color component is a yellow component (para. 30, lines 1-11 of Reed – *tweaking of second color component (black) determines tweaking of first color component (yellow) and other color components (cyan and magenta)*).

Further regarding claims 6, 12 and 18: Reed discloses a code extracting unit (para. 52, lines 2-4 of Reed – *corresponding portion of stored computer program*) that extracts the code embedded into the image data (figure 15 and para. 76 of Reed – *watermark is extracted and analyzed*).

7.   **Claims 5, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cass (US-6,141,441) in view of Reed (US-2002/164052) and DeProspero (US-2002/0040648).**

Regarding claims 5, 11 and 17: Cass in view of Reed does not disclose expressly that the second color component is a magenta component. However, Reed does disclose that the tweaking can be

performed such that the yellow component correlates with, but is different than, the magenta component (para. 30, lines 11-18 of Reed – *yellow and magenta combine such that luminance is maintained at constant level; if magenta component increases, yellow component decreases by predetermined amount*).

DeProspero discloses adjusting the yellow component based on the value of the magenta component (para. 45 of DeProspero).

Cass in view of Reed is combinable with DeProspero because they are from similar problem solving areas, namely the adjustment and correction of color data printed by the physical ink of one primary color through the modification of the amount of ink used for a different primary ink color. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the value of yellow based on the value of magenta, as taught by DeProspero. Thus, the second color component is a magenta component. Reed already teaches that magenta and yellow can be set with respect to each other. Modifying Cass in view of Reed with respect to the teachings of DeProspero would simply require that magenta and yellow are adjusted in opposition with each other, rather than in joint opposition to the black ink. The motivation for doing so would have been to compensate for the physical limitations of the printed colors, which are not always pure colors when physically printed (para. 44-45 of DeProspero – *different shades and qualities of varying desirability are used for magenta*). Therefore, it would have been obvious to combine DeProspero with Cass in view of Reed to obtain the invention as specified in claims 5, 11 and 17.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Examiner, Art Unit 2625

25 September 2008